

CLAIMS

What is claimed is:

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1. A communication system comprising:
one or more gateways coupled to a terrestrial network;
one or more subscriber terminals that are to be coupled to the terrestrial network;
and
a communication satellite providing forward and return communication links
between the one or more gateways and the one or more subscriber terminals that each
comprise a switching network that selectively couples signals between selected gateways
and selected subscriber terminals using predetermined beams.
2. The communication system recited in Claim 1 wherein the terrestrial network
comprises the Internet.
3. The communication system recited in Claim 1 wherein the forward
communication link implemented in the communication satellite comprises:
a plurality of first switches that receive data transmitted from a respective
plurality of gateways;
5 one or more forward channel gateway multiplexers selectively coupled to one of
the plurality of first switches;
a plurality of second switches selectively coupled to outputs of the plurality of
first switches and selectively coupled to outputs of the one or more forward channel
gateway multiplexers; and
10 one or more regional multiplexers selectively coupled to the plurality of second
switches that output data to a plurality of regions servicing the one or more subscriber
terminals.
4. The communication system recited in Claim 1 wherein selected ones of the
pluralities of first and second switches comprise power dividing hybrids.
5. The communication system recited in Claim 1 wherein the forward
communication link implemented in the communication satellite comprises:
a first switch for receiving data transmitted from a first gateway;
a third switch for receiving data transmitted from a second gateway;
5 a forward channel gateway multiplexer coupled to the first switch;

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a second switch coupled to the first switch and to a first output of the forward channel gateway multiplexer;
 a fourth switch coupled to the third switch and to a second output of the forward channel gateway multiplexer;
 10 a first multiplexer coupled to the second switch that outputs data to a first plurality of regions; and
 a second multiplexer coupled to the fourth switch that outputs data to a second plurality of regions.

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6. The communication system recited in Claim 1 wherein the return communication link implemented in the communication satellite comprises:

one or more regional multiplexers that receive data transmitted from subscriber terminals located in a plurality of regions;

5 a plurality of third switches respectively coupled to the one or more regional multiplexers;

one or more return channel gateway multiplexers selectively coupled to the plurality of third switches; and

10 a plurality of fourth switches selectively coupled to the one or more return channel gateway multiplexers and plurality of third switches that output data to the one or more gateways

7. The communication system recited in Claim 1 wherein selected ones of the pluralities of third and fourth switches comprise power dividing hybrids.

8. The communication system recited in Claim 1 wherein the return communication link implemented in the communication satellite comprises:

a first multiplexer for receiving data transmitted from a first plurality of regions;

5 a second multiplexer for receiving data transmitted from a second plurality of regions;

a first switch coupled to the first multiplexer;

a second switch coupled to the second multiplexer;

10 a return channel gateway multiplexer selectively coupled to the first and second switches;

a third switch selectively coupled to the first switch and the return channel gateway multiplexer that outputs data to a first gateway; and

a fourth switch coupled to the third switch that outputs data to a second gateway.

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~~9. The communication system recited in Claim 1 wherein each communication link implemented in the communication satellite comprises:~~

~~one or more first switches that communicate with corresponding gateways;~~
~~one or more gateway multiplexers coupled to the one or more first switches;~~
~~one or more second switches selectively coupled to the one or more gateway multiplexers and selectively coupled to the one or more first switches; and~~
~~one or more regional multiplexers coupled to the one or more second switches that communicate with plurality of regions.~~

10. The communication system recited in Claim 9 wherein selected ones of the first and second switches comprise power dividing hybrids.